

SAF-B00-056
100-NR-1 TSD Sites R. A.
Sampling - Water
FINAL DATA PACKAGE

FAX RESULTS TO:

Rick Kerkow

373-1395

N/A
INITIAL/DATE**VERIFICATION OF CLIENT RECEIPT:**

Phone or CC:Mail to Rick Kerkow

N/A
INITIAL/DATE**COMPLETE COPY OF DATA PACKAGE TO:**

Rick Kerkow

X5-60

BK 2/19/03
INITIAL/DATE

Jeanette Duncan

BK 2/19/03
INITIAL/DATE**COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)**SDG H2059

SAF-B00-056

X Rad only

Chem only

Rad & Chem

X Complete

Partial

Waste Site: 100-NR-1 Decon Pad Sump

RECEIVED
APR 28 2003
EDMC



EBERLINE

SERVICES

February 15, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R3-01-128-7757, SDG H2059

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. B00-056 received at Eberline Services on January 28, 2003. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2059 was composed of one water sample designated under SAF No. B00-056 with a Project Designation of: 100-NR-1 TSD Sites R.A. Sampling – Water.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on January 31, 2003.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.3 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Melissa C. Mannion
Program Manager

2/15/3

Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2059

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S				
About this section	.	.	.	1
Sample Summaries	.	.	.	3
Prep Batch Summary	.	.	.	5
Work Summary	.	.	.	6
Method Blanks	.	.	.	7
Lab Control Samples	.	.	.	8
Duplicates	.	.	.	9
Data Sheets	.	.	.	10
Method Summaries	.	.	.	11
Report Guides	.	.	.	15
End of Section	.	.	.	29

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG H2059

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

SAMPLE SUMMARY

SDG 7757

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H2059

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00FY5	100-NR-1 Decon Pad Sump	WATER		R301128-01	800-056	800-056-047	01/24/03 08:45
Method Blank		WATER		R301128-03	800-056		
Lab Control Sample		WATER		R301128-02	800-056		
Duplicate (R301128-01)	100-NR-1 Decon Pad Sump	WATER		R301128-04	800-056		01/24/03 08:45

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-CS

Version 3.06

Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2059

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7757	B00-056-047	J00FY5	WATER		1.0 L		01/28/03 4	R301128-01		7757-001
		Method Blank	WATER						R301128-03	7757-003
		Lab Control Sample	WATER						R301128-02	7757-002
		Duplicate (R301128-01)	WATER		1.0 L		01/28/03 4	R301128-04		7757-004

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2059

TEST	MATRIX	METHOD	PREPARATION	ERROR	PLANCHETS ANALYZED				QUALI-		
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS	DUP/ORIG
Beta Counting											
SR	WATER	Total Strontium in Water	7032-170	10.0	1			1	1	1/1	
Gas Proportional Counting											
93A	WATER	Gross Alpha in Water	7032-170	20.0	1			1	1	1/1	
93B	WATER	Gross Beta in Water	7032-170	15.0	1			1	1	1/1	
Gamma Scan											
GAM	WATER	Gamma Emitters	7032-170	15.0	1			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

Page 1

SUMMARY DATA SECTION

Page 5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford

Contract No. 630

Case no SDG H2059

CLIENT SAMPLE ID		LAB SAMPLE ID								
LOCATION		MATRIX	COLLECTED		TEST	SUF-				
CUSTODY	SAF No		RECEIVED	PLANCHET		FIX	ANALYZED	REVIEWED	BY	METHOD
J00FY5			R301128-01	7757-001	93A/93		01/30/03	01/31/03	MCM	Gross Alpha in Water
100-NR-1 Decon Pad Sump		WATER	01/24/03	7757-001	93B/93		01/30/03	01/31/03	MCM	Gross Beta in Water
B00-056-047	B00-056		01/28/03	7757-001	GAM		01/28/03	01/31/03	MCM	Gamma Emitters
				7757-001	SR		01/30/03	01/31/03	MCM	Total Strontium in Water
Method Blank			R301128-03	7757-003	93A/93		01/30/03	01/31/03	MCM	Gross Alpha in Water
		WATER		7757-003	93B/93		01/30/03	01/31/03	MCM	Gross Beta in Water
	B00-056			7757-003	GAM		01/28/03	01/31/03	MCM	Gamma Emitters
				7757-003	SR		01/30/03	01/31/03	MCM	Total Strontium in Water
Lab Control Sample			R301128-02	7757-002	93A/93		01/30/03	01/31/03	MCM	Gross Alpha in Water
		WATER		7757-002	93B/93		01/30/03	01/31/03	MCM	Gross Beta in Water
	B00-056			7757-002	GAM		01/28/03	01/31/03	MCM	Gamma Emitters
				7757-002	SR		01/30/03	01/31/03	MCM	Total Strontium in Water
Duplicate (R301128-01)			R301128-04	7757-004	93A/93		01/30/03	01/31/03	MCM	Gross Alpha in Water
100-NR-1 Decon Pad Sump		WATER	01/24/03	7757-004	93B/93		01/30/03	01/31/03	MCM	Gross Beta in Water
	B00-056		01/28/03	7757-004	GAM		01/29/03	01/31/03	MCM	Gamma Emitters
				7757-004	SR		01/30/03	01/31/03	MCM	Total Strontium in Water

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	B00-056	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	B00-056	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	B00-056	Gamma Emitters	GAMMA_GS	1			1	1	1	4
SR	B00-056	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TOTALS				4			4	4	4	16

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-CWS

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2059

R301128-03

Method Blank

METHOD BLANK

SDG <u>7757</u>	Client/Case no <u>Hanford</u>	SDG <u>H2059</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301128-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7757-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B00-056</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.384	1.5	<u>3.1</u>	3.0	U	93A
Gross Beta	12587-47-2	1.34	3.9	<u>6.5</u>	4.0	U	93B
Total Strontium	SR-RAD	-0.862	1.0	<u>2.4</u>	2.0	U	SR
Potassium 40	13966-00-2	U		70		U	GAM
Cobalt 60	10198-40-0	U		5.8	25	U	GAM
Cesium 137	10045-97-3	U		5.5	15	U	GAM
Radium 226	13982-63-3	U		11		U	GAM
Radium 228	15262-20-1	U		24		U	GAM
Europium 152	14683-23-9	U		14	50	U	GAM
Europium 154	15585-10-1	U		18	50	U	GAM
Europium 155	14391-16-3	U		12	50	U	GAM
Thorium 228	14274-82-9	U		7.8		U	GAM
Thorium 232	TH-232	U		24		U	GAM
Uranium 235	15117-96-1	U		20		U	GAM
Uranium 238	U-238	U		690		U	GAM
Americium 241	14596-10-2	U		16		U	GAM

100-NR-1 TSD Sites R.A. Sampling H2O

QC-BLANK 43694

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 7

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/31/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

R301128-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7757</u>	Client/Case no <u>Hanford</u>	SDG <u>H2059</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301128-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7757-002</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>800-056</u>	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	238	16	2.9	3.0		93A	214	8.6	111	64-136	70-130
Gross Beta	219	11	<u>7.5</u>	4.0		93B	233	9.3	94	77-123	70-130
Total Strontium	161	7.0	<u>2.3</u>	2.0		SR	148	5.9	109	81-119	80-120
Cobalt 60	560	22	13	25		GAM	532	21	105	75-125	80-120
Cesium 137	544	19	14	15		GAM	514	21	106	75-125	80-120

100-NR-1 TSD Sites R.A. Sampling H2O

QC-LCS 43693

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 8

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LCS
 Version 3.06
 Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

R301128-04

J00FY5

DUPLICATE

SDG <u>7757</u>		Client/Case no <u>Hanford</u>		SDG <u>H2059</u>
Contact <u>Melissa C. Mannion</u>		Contract No. <u>630</u>		
DUPLICATE		ORIGINAL		
Lab sample id <u>R301128-04</u>	Lab sample id <u>R301128-01</u>	Client sample id <u>J00FY5</u>		
Dept sample id <u>7757-004</u>	Dept sample id <u>7757-001</u>	Location/Matrix <u>100-NR-1 Decon Pad Sump WATER</u>		
	Received <u>01/28/03</u>	Collected/Volume <u>01/24/03 08:45</u> <u>1.0 L</u>		
		Custody/SAF No <u>B00-056-047</u> <u>B00-056</u>		

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	-0.363	1.7	2.6	3.0	U	93A	1.16	2.0	2.2	U	-	
Gross Beta	96.8	7.9	7.6	4.0		93B	121	7.9	5.1		22	36
Total Strontium	46.0	3.9	2.4	2.0		SR	46.8	3.7	2.1		2	27
Potassium 40	U		100		U	GAM	U		160	U	-	
Cobalt 60	U		11	25	U	GAM	U		27	U	-	
Cesium 137	U		19	15	U	GAM	U		13	U	-	
Radium 226	U		18		U	GAM	U		19	U	-	
Radium 228	U		40		U	GAM	U		49	U	-	
Europium 152	U		23	50	U	GAM	U		28	U	-	
Europium 154	U		26	50	U	GAM	U		29	U	-	
Europium 155	U		19	50	U	GAM	U		27	U	-	
Thorium 228	U		12		U	GAM	U		14	U	-	
Thorium 232	U		40		U	GAM	U		49	U	-	
Uranium 235	U		31		U	GAM	U		42	U	-	
Uranium 238	U		1100		U	GAM	U		1200	U	-	
Americium 241	U		25		U	GAM	U		36	U	-	

100-NR-1 TSD Sites R.A. Sampling H20

QC-DUP#1 43695

Note: Sample pH - 6.0

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 9

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
 Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

R301128-01

J00FY5

DATA SHEET

SDG <u>7757</u>	Client/Case no <u>Hanford</u>	SDG <u>H2059</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301128-01</u>	Client sample id <u>J00FY5</u>	
Dept sample id <u>7757-001</u>	Location/Matrix <u>100-NR-1 Decon Pad Sump</u>	<u>WATER</u>
Received <u>01/28/03</u>	Collected/Volume <u>01/24/03 08:45</u>	<u>1.0 L</u>
	Custody/SAF No <u>B00-056-047</u>	<u>B00-056</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.16	2.0	2.2	3.0	U	93A
Gross Beta	12587-47-2	121	7.9	5.1	4.0		93B
Total Strontium	SR-RAD	46.8	3.7	2.1	2.0		SR
Potassium 40	13966-00-2	U		160		U	GAM
Cobalt 60	10198-40-0	U		27	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Radium 226	13982-63-3	U		19		U	GAM
Radium 228	15262-20-1	U		49		U	GAM
Europium 152	14683-23-9	U		28	50	U	GAM
Europium 154	15585-10-1	U		29	50	U	GAM
Europium 155	14391-16-3	U		27	50	U	GAM
Thorium 228	14274-82-9	U		14		U	GAM
Thorium 232	TH-232	U		49		U	GAM
Uranium 235	15117-96-1	U		42		U	GAM
Uranium 238	U-238	U		1200		U	GAM
Americium 241	14596-10-2	U		36		U	GAM

100-NR-1 TSD Sites R.A. Sampling H2O

Note: Sample pH - 6.0

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 10

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DS
 Version 3.06
 Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

METHOD SUMMARY

TOTAL STRONTIUM IN WATER
BETA COUNTING

Test SR Matrix WATER
SDG 7757
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2059

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Strontium
------------------	------------------	-------------	-------------	----------	--------------------

Preparation batch 7032-170

J00FY5	R301128-01			7757-001	46.8
BLK (QC ID=43694)	R301128-03			7757-003	U
LCS (QC ID=43693)	R301128-02			7757-002	ok
Duplicate (R301128-01)	R301128-04			7757-004	ok

Nominal values and limits from method RDLs (pCi/L) 2.0
100-NR-1 TSD Sites R.A. Sampling H2O

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	------------------	-------------	-------------	--------------	-----------	-------------	---------------	------------	----------	--------------	-------------	--------------	--------------	-------------------	------	----------

Preparation batch 7032-170 2σ prep error 10.0 % Reference Lab Notebook 7024 pg. 170

J00FY5	R301128-01			2.1	0.150			86	100			6	01/30/03	01/30	GRB-218
BLK (QC ID=43694)	R301128-03			2.4	0.150			76	100				01/30/03	01/30	GRB-220
LCS (QC ID=43693)	R301128-02			2.3	0.150			82	100				01/30/03	01/30	GRB-219
Duplicate (R301128-01) (QC ID=43695)	R301128-04			2.4	0.150			80	100			6	01/30/03	01/30	GRB-224

Nominal values and limits from method 2.0 0.150 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-501 Strontium in Water Samples, rev 4

AVERAGES ± 2 SD MDA 2.3 ± 0.28
FOR 4 SAMPLES YIELD 81 ± 8

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

Test 93A Matrix WATER
SDG 7757
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2059

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
------------------	------------------	-------------	-------------	----------	-------------

Preparation batch 7032-170

J00FY5	R301128-01	93		7757-001	U
BLK (QC ID=43694)	R301128-03	93		7757-003	U
LCS (QC ID=43693)	R301128-02	93		7757-002	ok
Duplicate (R301128-01)	R301128-04	93		7757-004	- U

Nominal values and limits from method RDLs (pCi/L) 3.0
100-NR-1 TSD Sites R.A. Sampling H20

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	------------------	-------------	-------------	--------------	-----------	-------------	---------------	-------------	----------	--------------	-------------	--------------	--------------	-------------------	------	----------

Preparation batch 7032-170 2σ prep error 20.0 % Reference Lab Notebook 7024 pg. 170

J00FY5	R301128-01	93		2.2	0.100			6	100				6	01/30/03	01/30	GRB-101
BLK (QC ID=43694)	R301128-03	93		3.1	0.100			21	100					01/30/03	01/30	GRB-105
LCS (QC ID=43693)	R301128-02	93		2.9	0.100			21	100					01/30/03	01/30	GRB-114
Duplicate (R301128-01)	R301128-04	93		2.6	0.100			6	100				6	01/30/03	01/30	GRB-108
(QC ID=43695)																

Nominal values and limits from method 3.0 0.100 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 2.7 ± 0.78
FOR 4 SAMPLES RESIDUE 14 ± 17

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

Test 93B Matrix WATER
SDG 7757
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2059

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Gross Beta
------------------	------------------	-----------------	------------------	------------

Preparation batch 7032-170

J00FY5	R301128-01	93	7757-001	121
BLK (QC ID=43694)	R301128-03	93	7757-003	U
LCS (QC ID=43693)	R301128-02	93	7757-002	ok
Duplicate (R301128-01)	R301128-04	93	7757-004	ok

Nominal values and limits from method RDLs (pCi/L) 4.0
100-NR-1 TSD Sites R.A. Sampling H2O

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ FAC	PREP TION	DILU- mg	RESID %	EFF min	COUNT keV	FWHM keV	DRIFT HELD	DAYS PREPARED	ANAL- YZED	DETECTOR
------------------	------------------	-----------------	---------------	----------	-------------	--------------	-------------	------------	------------	--------------	-------------	---------------	------------------	---------------	----------

Preparation batch 7032-170 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 170

J00FY5	R301128-01	93	<u>5.1</u>	0.100			6	100				6	01/30/03	01/30	GRB-101
BLK (QC ID=43694)	R301128-03	93	<u>6.5</u>	0.100			21	100					01/30/03	01/30	GRB-105
LCS (QC ID=43693)	R301128-02	93	<u>7.5</u>	0.100			21	100					01/30/03	01/30	GRB-114
Duplicate (R301128-01) (QC ID=43695)	R301128-04	93	<u>7.6</u>	0.100			6	100				6	01/30/03	01/30	GRB-108

Nominal values and limits from method 4.0 0.100 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHA_BETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 6.7 ± 2.3
FOR 4 SAMPLES RESIDUE 14 ± 17

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

Page 13

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2059

Test GAM Matrix WATER
SDG 7757
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Client Hanford
Contract No. 630
Contract SDG H2059

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Cobalt 60	Cesium 137
------------------	------------------	-------------	-------------	----------	-----------	------------

Preparation batch 7032-170

J00FY5	R301128-01	7757-001	U	U		
BLK (QC ID=43694)	R301128-03	7757-003	U	U		
LCS (QC ID=43693)	R301128-02	7757-002	ok	ok		
Duplicate (R301128-01)	R301128-04	7757-004	-	U	-	U

Nominal values and limits from method RDLs (pCi/L) 25 15
100-NR-1 TSD Sites R.A. Sampling H20

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	------------------	-------------	-------------	--------------	-----------	-------------	---------------	------------	----------	--------------	-------------	--------------	--------------	-------------------	------	----------

Preparation batch 7032-170 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 170

J00FY5	R301128-01	47	0.500	783	4	01/28/03	01/28	01,03,00								
BLK (QC ID=43694)	R301128-03	21	0.500	783		01/28/03	01/28	01,04,00								
LCS (QC ID=43693)	R301128-02	14	0.500	783		01/28/03	01/28	MB,07,00								
Duplicate (R301128-01) (QC ID=43695)	R301128-04	34	0.500	319	5	01/28/03	01/29	01,04,00								

Nominal values and limits from method 15 0.500 100 180

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA 29 ± 29
FOR 4 SAMPLES YIELD ±

METHOD SUMMARIES

Page 4

SUMMARY DATA SECTION

Page 14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG H2059

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 15

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

Page 18

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2059

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
 - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
 - H Similar to 'L' except the recovery was high.
 - P The RESULT is 'preliminary'.
 - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
 - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

REPORT GUIDES

Page 5

SUMMARY DATA SECTION

Page 19

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757Contact Melissa C. Mannion

GUIDE, cont.

Client HanfordContract No. 630Case no SDG H2059

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 20

Lab id EBRLNEProtocol HanfordVersion Ver 1.0Form DVD-RGVersion 3.06Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG_H2059

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 21

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 22

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2059

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES

Page 9

SUMMARY DATA SECTION

Page 23

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2059

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2059

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES

Page 11

SUMMARY DATA SECTION

Page 25

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG H2059

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

REPORT GUIDES

Page 12

SUMMARY DATA SECTION

Page 26

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2059

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 27

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2059

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 28

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2059

SDG 7757

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2059

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES

Page 15

SUMMARY DATA SECTION

Page 29

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 01/31/03

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B00-056-047		Page 1 of 1							
Collector R.B. Kerkow		Company Contact R.B. Kerkow		Telephone No. 372-2187		Project Coordinator KESSNER, JH		Price Code 7A Data Turnaround							
Project Designation 100-NR-1 TSD Sites R. A. Sampling - Water		Sampling Location 100-NR-1 Decon Pad Sump #9		H2059 (7757)		SAF No. B00-056		Air Quality <input type="checkbox"/> 3 DAY							
Ice Chest No. ERC 01.019		Field Logbook No. EL-1524-3		COA R1301N2600		Method of Shipment FED EX									
Shipped To (TMA) RECRA		Offsite Property No. A030143		Bill of Lading/Air Bill No. SEE OSC											
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Special Handling and/or Storage None				Preservation	NONE										
				Type of Container	P										
				No. of Container(s)	1										
				Volume	1L										
SAMPLE ANALYSIS					See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time												
J00FY5	WATER	1-24-03	0845	X								J00FY4	J00FY3		
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
RB Kerkow / RB Kerkow		1-24-03 1545		REF 1A		1-24-03 1545									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
REF 1A		12703 0900		SIGALED		12703 0900									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
SIGALED		12703 0900		FED EX											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
						1/28/03/0930									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION				Received By				Title							
				<i>[Signature]</i>				1-28-03 / 0930							
FINAL SAMPLE DISPOSITION				Disposal Method				Disposed By							

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>BH1</u>	Date/Time received	<u>1/28/03 / 0930</u>
CoC No.	<u>B00-056-047</u>		
Container I.D. No.	<u>ERC-01-019</u>	Requested TAT (Days)	<u>3</u> P.O. Received Yes [] No []
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
2.	Custody seals on shipping container dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
3.	Custody seals on sample containers intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
4.	Custody seals on sample containers dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
5.	Packing material is:	Wet []	Dry [<input checked="" type="checkbox"/>]
6.	Number of samples in shipping container:	<u>1</u>	
7.	Number of containers per sample:	<u>1</u> (Or see CoC _____)	
8.	Paperwork agrees with samples?	Yes []	No []
9.	Samples have: Tape [<input checked="" type="checkbox"/>] Hazard labels [<input checked="" type="checkbox"/>] Rad labels [<input checked="" type="checkbox"/>] Appropriate sample labels [<input checked="" type="checkbox"/>]		
10.	Samples are: In good condition [<input checked="" type="checkbox"/>] Leaking [] Broken Container [] Missing []		
11.	Describe any anomalies: _____ _____		
13.	Was P.M. notified of any anomalies? Yes []	No []	Date _____
14.	Received by <u>[Signature]</u>	Date: <u>1/28/03</u>	Time: <u>0930</u>

[illegible]